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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,701	08/03/2006	Klaus-Robert Muller	0179-0247PUS1	9571

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EXAMINER

OLSEN, LIN B

ART UNIT	PAPER NUMBER
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3661

NOTIFICATION DATE	DELIVERY MODE
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12/29/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/549,701	Applicant(s) MULLER ET AL.	
	Examiner LIN B. OLSEN	Art Unit 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on August 7, 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-12 were in the application. The Amendment of August 7, 2008 amended claims 1, 3, 7, and 9 and amended the specification to incorporate claims 1 through 12 as originally presented. Claims 1-12 are now present in this application.

Specification

The disclosure is objected to because of the following informalities: The Specification does not incorporate the preferred headings of the sections of the application.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.

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- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A “Sequence Listing” is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required “Sequence Listing” is not submitted as an electronic document on compact disc).

Appropriate correction is required.

Claim Objections

Claims 2 and 9 are objected to because of the following informalities:

Regarding claim 2, the phrase “the physiological signals” has no antecedent basis.

Regarding claim 8, the phrase e.g. renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). In addition, the phrase “generally, all” in section e) of the claim is indefinite.

Regarding claim 9, the term “reagibility” is not in the dictionaries available to the examiner, the applicant is requested to substitute a more colloquial term of art.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 12 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for measuring the cerebral current of one or more occupants of a vehicle does not reasonably provide enablement for averaging being the correct way of combining the result of the measures of two individuals. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Regarding claim 12, which is dependent on claim 1, "characterized in that the measures to be initiated are taken on the basis of an averaging of the intentions of a plurality of vehicle occupants."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are to a process used to initiate occupant-assisted measures, however, the claims do not define the steps of the process, and therefore the claims encompass all ways to do the method. The proper form for a claim incorporates a preamble, a transition phrase and the body of the claim.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **1-10 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Pub. No. 2004/0117098 to Ryu et al. (Ryu). Ryu describes an apparatus and method for controlling a vehicle's brake using brain waves. In particular the device detects the driver's intention to use the brake and starts the initiation of braking before the foot can be moved to accomplish the action.

Regarding independent **claim 1** as best understood in light of indefinite rejections - "A method for initiating occupant-assisted measures inside a motor vehicle, wherein cerebral-current signals of at least one vehicle occupant, are detected by a measurement technique," - Ryu describes (paragraph 23) using brain waves of the driver - "on the basis of the cerebral-current signals, the intention of the vehicle occupant is detected by real-time processing, based on the generation of motor intentions and preparations of movements of the vehicle occupant" - The intention is determined using a characteristic of the brain wave (Para. 23) - "that are detected by extraction of correlatives from a brain current signal which are identifiable as individual events, and on the basis of the detected motor intentions and preparations of movements of the vehicle occupant," - (Para 24 - using characteristic of the brain waves appearing before the driver performs the movement.) "measures for transferring the current state of the vehicle into a state of the vehicle matched to the intention of the

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vehicle occupant are initiated in advance.” - the activation of the brake earlier than the driver could do so prepares the vehicle for the driver’s activation.

Regarding **claim 2**, which is dependent on claim 1, “characterized in that the physiological signals are detected non-invasively.” – (Para. 29 – brain waves detected through a headphone –type monitor)

Regarding **claim 3**, which is dependent on claim 1, “characterized in that the cerebral-current signals are EEG, MEG, NIRS, fMRI and/or EMG cerebral signals.” – (Para. 26 EEG well known method)

Regarding **claim 4**, which is dependent on claim 1, “characterized in that the real-time processing of the measurement signals is performed by use of methods of signal processing and/or machine learning which allow an evaluation of the measurement signals as individual signals and without extensive training of the occupant of the vehicle.” – (Para 29 – input from electrode processed and compared to reference electrode from Ear. – training not needed.)

Regarding **claim 5**, which is dependent on claim 4, “characterized in that the methods for signal processing for adaptive feature extraction from the measurement signals comprise, alternatively or in any desired combination, at least one of the following features:

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- a) filtration (spatial and in the frequency range) and downsampling,
- b) splitting and projection, respectively,
- c) determination of spatial, temporal or spatio-temporal complexity dimensions,
- d) determination of coherence dimensions (related to phase or band energy)

between input signals.” (Para 30 – signal filtered in amplifier and digitized).

Regarding **claim 6**, which is dependent on claim 5, “characterized in that the filtration comprises, alternatively or in any desired combination, at least one of the following features:

- a) wavelet or Fourier filter (short-time),
- b) FIR or IIR filter,
- c) Laplace and common average reference filter,
- d) smoothing method.” – (Para 32 - Power of a specific frequency region in a

predetermined time measured.

Regarding **claim 7**, which is dependent on claim 5, “characterized in that the splitting and projection, respectively, comprises, at least one of the following features:

- a) independent component analysis and main component analysis,
- b) projection pursuit technique,
- c) sparse decomposition techniques,
- d) common spatial patterns techniques,
- e) common substance decomposition techniques,

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f) (Bayes') sub-space regularization techniques.” – (Para 33 – Fast Fourier transform may be used on be used to yield power)

Regarding **claim 8**, which is dependent on claim 4 or any one of the preceding claims as far as dependent on claim 4, “characterized in that the machine learning method comprises a classification and/or regression, notably by use of

- a) core-based linear and non-linear learning machines (e.g. support vector machines, Kern Fisher, linear programming machines),
- b) discriminance analyses,
- c) neuronal networks,
- d) decision trees,
- e) generally, all linear and non-linear classification methods for the features obtained by signal processing.” – (Para. 32 the central beta rhythm of the brain wave is used)

Regarding **claim 9**, which is dependent on claim 1, “characterized in that the initiating measures are accident-preventive measures comprising

- a) automatic safety belt tightening,
- b) seat optimization,
- c) optimization of the vehicle reability to prepare a braking/steering operation,
- d) stability computations,
- e) pre-optimization of the vehicle dynamics in case of time-critical decisions,

f) all predicative safety measures.” – Actuating the brake system milliseconds before the driver can do so, places the vehicle in a position of prepared for best braking.

Regarding **claim 10**, which is dependent on claim 1, “characterized in that the intention or estimated on the basis of the cerebral-current signals serves for the verification of device-detected hazard situations, particularly by detection of a congruent motor intention build-up and situation modeling and validating.”

Claim **11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ryu as applied to claims 1–10 and 12 above, and further in view of U.S. Patent Pub. No. 2004/0193068 to Burton et al. (Burton). Burton is concerned with methods of monitoring for consciousness.

Regarding **claim 11**, which is dependent on claim 1, “characterized by use and integration continuous vigilance monitoring.” – Ryu has been shown to all detection of the driver’s intention to apply the brakes. It is well known that such monitoring is effective in an alert driver. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the known techniques of Burton to assure that the driver is vigilant as suggested in paragraph 159 of Burton to improve the Ryu device so that the combined device can alert the driver when he is not sufficiently vigilant to have the intentional device function.

Response to Arguments

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). However, in *KSR*, 550 U.S.

at ____, 82 USPQ2d at 1391, the Supreme Court stated "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id.* at ____, 82 USPQ2d at 1396.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,840,040 to Altschuler et al; U.S. Patent No. 6,636,763 to Junker et al, for a Brain Body actuated system showing signal processing

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that is common,; U.S. Patent Pub. No. 2002/0091335 to John et al. – Portable EEGs usable in vehicles known; U.S. Patent Pub. No. 2003/0023319 to Andersen et al. predict an intended action in the use of prosthetics; U.S. Patent Pub. No. 2003/0139683 to Ryu for processing methods for EEG signals; U.S. Patent Pub. No. 2005/0228515 to Musallamet al.; and WO 97/15249 to Cypromed – means of integrating motor intention signals and state of tissue.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIN B. OLSEN whose telephone number is (571)272-9754. The examiner can normally be reached on Mon - Fri, 8:30 -5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Lin B Olsen/

Examiner, Art Unit 3661

/KHOI TRAN/

Supervisory Patent Examiner, Art Unit 3664

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